IN THE CLAIMS:

Please amend the claims as follows:

4. (Amended) A method according to claim 1, wherein step (a), a detectable marker element is also inserted in said carrier.

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5. (Amended) A method according to claim 1, wherein the nucleic acid of interest is a gene encoding a peptide, a protein or an RNA.

6. (Amended) A method according to claim 1, wherein the biological membrane is a cell wall.

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8. (Amended) A method according to claim 1, wherein the biological membrane is a nuclear membrane.

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10. (Amended) A method according to claim 1, wherein step (b), an FE comprising a protein, each as in HIV protein, e.g. TAT, is provided in said complex, which enables both membrane translocation and nuclear transport of the nucleic acid of interest.

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15. (Amended) A synthetic transport entity suitable for use in the method according to claim 1, which is comprised of at least one functional element (FE), which is complexed to a binding element (BE) in the form of a peptide nucleic acid (PNA)

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or a derivative or an analogue thereof, and a nucleic acid carrier, which comprises at least one BE target sequence and a nucleic acid of interest in a vector, said complex being hybridized to said carrier using the BE-BE target interaction.

18. (Amended) A transport entity according to claim 15, wherein the nucleic acid of interest is a gene encoding a peptide, a protein or an RNA.

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19. (Amended) A transport entity according to claim 15, wherein said BE and FE(s) are separated by linker element(s).

20. (Amended) A transport entity according to claim 15, which comprises more than one FE-BE=complex, each one of which is hybridized to a separate BE target sequence present on the same carrier.

22. (Amended) A transport entity according to claim 15, wherein the FE is an antennapedia peptide.

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23. (Amended) A transport entity according to claim 15, wherein the FE is a nuclear localization signal (NLS), such as a SV40 large T antigen protein, or a fragment thereof exhibiting nuclear localizing signal properties.

24. A transport entity according to claim 15, wherein the FE is a protein, such as an HIV protein, e.g. TAT, exhibiting properties enabling both membrane translocation and nuclear transport.

25. (Amended) A recombinant cell comprising one or more genetic modification(s) provided by use of the method as defined in claim 1 or a transport entity as defined in claim 15.

26. (Amended) Use of a transport entity according to claim 15 or a cell according to claim 25 in gene therapy.

27. (Amended) Use of a transport entity according to claim 15 or a cell according to claim 25 in DNA-vaccination.